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ABSTRACT

Some of the problems preventing maximum utilization of new research knowledge and products are discussed. A proposed strategy for production, distribution, installation, and utilization includes (1) financing and managing the production of the final product form; (2) selecting strategies for increasing product awareness and user motivation; (3) choosing distribution arrangements and agents; and (4) providing for installation, service, and monitoring. The functions of the development-dissemination-utilization process are described. Four alternative models of relationships between the National Institute of Education (NIE) utilization staff and agents outside NIE are discussed. The documents concludes with guidelines for utilization, such as (1) NIE should avoid building an extensive permanent, centralized utilization staff of its own; (2) where possible, NIE should employ the services of outside agencies; however (3) outside agents should not be used when they will push the costs of NIE products above a price that users can pay. (Author/MLF)

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UTILIZATION OF NIE OUTPUT

Since the central purpose of educational research and development is educational improvement, its effectiveness will be measured by how rapidly and effectively it accelerates desirable educational changes. A strong educational R&D program must add to our knowledge in basic disciplines relevant to education, stimulate development of improved instructional materials and systems, improve the processes of educational planning and problem-solving, increase cooperation among educational agencies, and thus hasten educational self-renewal.

Research and development cannot limit its concern to generating new knowledge and new products - it must also assume the responsibility for assuring that these new capabilities are utilized. This output of educational R&D must be used - properly, widely, and continuously. If it is not used as intended, then major resources invested in this R&D effort will have been tragically wasted. Although this responsibility for utilization cannot be neglected, it does not follow that R&D be directly involved in carrying out each function of utilization. It is likely that many specific functions relating to utilizing the output of R&D will remain within the province of others.

Maximum utilization is an all-too-obvious goal. But the problems to be overcome before that goal is reached are enormous and varied.

1. The Basic Problem

At the simplest level, we must reject the "better mousetrap" notion that has prevailed in many segments of the research community. A brilliantly conceptualized new educational alternative does not auto-

matically find its way into use in the nation's schools and teacher-training institutions through some mysterious process such as "diffusion." In fact, the new alternative may ultimately be known to only a handful of the original creator's colleagues and a very limited number of readers of one or more technical journals. Those educational practitioners through whom utilization is accomplished can be expected to be heavily preoccupied with their own immediate problems; thus because of limited awareness of new alternatives, they will tend to remain stymied by the stumbling blocks which are immediately impeding their progress.

Educational organizations are currently neither equipped nor staffed to "package" new knowledge in a format that will enable each practitioner easily to adopt or adapt it for his own specific needs. Traditional means such as lectures to students by a college professor, journal articles prepared for technical readers, professional "workshops" or annual meetings, and visits made by representatives of the commercial publishers, although useful for many purposes, seem insufficient to constitute an effective utilization system by which we can hope to bring about broad educational self-renewal.

The output of rigorous educational R&D, when skillfully packaged and broadly demonstrated to potential users, is likely to appear "expensive" or "threatening" to many of those who might be tempted to install and utilize a new and improved practice. The onerous burdens of unhappy local taxpayers, who must now provide most school revenues, and the struggle among both professional and lay groups over who is to manage the conduct of public education are too well known to require comment.

Thus, it is abundantly clear not only that we will be obliged to assume a huge responsibility for utilization of products, but that, in accepting this mission, we will be obliged to secure extensive federal subsidies for hard-pressed school districts to assure that the desired educational self-renewal can actually occur.

2. Utilization Barriers

A set of utilization barriers that must be overcome can be found in a cluster of "resistance" factors. These include: inertia per se; a tendency to rationalize certain aspects of present inefficiency; a "show-me" need to be convinced by seeing or touching the innovation itself to see if it works in situations comparable to the person's own frame of reference; and institutional defensiveness against perceived external criticism, whether real or implied.

A more articulate form of resistance arises when any federal effort is construed as an attempt to legislate or impose a "national curriculum." Small research projects are less threatening than a major curricular development which, in turn, is far less threatening than a major program of research and development. Thus, one can be certain that NIE will face the dilemma of responding to a plurality of values while at the same time avoiding a lack of focus which results in unnecessary duplication and wasted efforts. A democratic nation cannot risk strong central control of its public school curricula, but demands for economy and accountability require that scarce resources be allocated pragmatically with a genuine concern for cost effectiveness.

3. Conflicting Forces

A major utilization problem that must be faced is the need for an attempt to reconcile the forces represented by developers' involvement in the utilization of their products, the need to be free to fail and thus to accept present risks, the pressing needs of the schools, and the rigor of the R&D process as a professional discipline. These disparate forces impinge on every decision made regarding utilization of a development.

If educational R&D is to flourish under NIE, the professional development team members must feel that they can take risks during the R&D cycle. Some seemingly useful products will be discarded and regarded in retrospect only as building blocks that contributed to the state of the art. Some developers will, on some occasions, have to accept the vicarious satisfaction of knowing that their best efforts met stringent performance criteria but were not perceived as "useful" enough to justify a further investment leading to actual utilization.

Constant screening will be required by NIE to assure the potential user that only the very best innovations will be recommended for installation and use. Some promising and effective developments will simply not get beyond testing if only because some competing development appears a more economical or more practical or more useful alternative which then obviated any need for further investment.

Utilization will also involve a far-reaching cat's cradle of linkages. Essentially, NIE would need to perform a limited but central role in the utilization functions - long-range planning, management, contract-

ing, funding, etc. First-hand installation, distribution, technical assistance, and monitoring tasks would fall to skilled linkage agents outside of NIE.

The NIE utilization staff should be given maximum flexibility as to the development of specific strategy to achieve specific goals. A complete system to achieve utilization of the output of NIE, however, goes well beyond providing for central direction from within NIE and provision for involvement of linking agents in delivery of products.

Strategy for Production, Distribution, Installation, and Utilization

Although it would be impossible to suggest a single general strategy for NIE products and processes at this early stage, several key problem areas can be outlined to suggest the complexities of the over-all tasks.

1. Financing and Managing the Production of the Final Product Form.

A major consideration in planning for the utilization of a product of R&D is the form of the product as this form affects costs that must be passed on to the user. A major problem with most current educational development has been a lack of effective attention to cost effectiveness. Most of the major technological, curricular, and management reform products that have appeared recently or are now under development have not sufficiently considered the user's ability to pay for use of the product. The difficulties are manifest: the urgent need to introduce new objects, materials, and procedures into schools if they are to survive the present crisis; the sudden availability of federal funds in the late sixties, followed by the fiscally stringent period of the early seventies which raised expectations but failed to follow through with resources; general mindlessness about "nothing-is-too-good-for-kids;" a lack of understanding of the costs and complexities of commercial distribution; and a failure on the part of the developers to consider alternative forms, materials, and strategies that might be equally effective as -- or more effective than -- those selected. There has been, in general, much more intensive consideration given to investment in expensive form, media, and style elements employed in the new alternative than to the function or value

of these elements in demonstrated improvements in educational outcomes.

NIE should be committed to a policy that demands cost effectiveness. No effort by NIE should be sustained without careful consideration of alternative strategies that might be just as effective as a higher priced alternative. An examination of such alternatives must be a primary function of the NIE-funded development programs. This concern should be a visible part in the utilization plan for any potential product.

2. Selecting Strategies for Increasing Product Awareness and User Motivation

Of the various functions that must occur in order to assure the utilization of a product, strategies designed to insure awareness and motivation may be the most difficult to engineer. This is also the area in which there is little empirical evidence as to what works best. There is an increasing amount of data on what happens but little is known about why or how it happens. In other words, dependable knowledge of the stimulus to institute the process is yet to be accumulated. Several conclusions seem justified, however. Bringing about the utilization of a new product is a complex process in which a number of factors must be present to induce a person or school system to depart from the old pattern of usage and adopt a new one. Economic and professional incentive or reward peer-group reinforcement product superiority (as perceived by the user) ability to pay and functional utility are all important -- probably more important than the form of the "sales pitch," the amount of information available about a product, or the opportunity to see it in use. Unfortunately, but explicably, it is the

latter, not the former, set of functions that dominate the effort of most dissemination efforts today. The NIE utilization staff must turn the situation around. It goes without saying that NIE must create opportunities for potential users to hear of its products, to see them in action, and to receive detailed information. But all of that effort will be of little effect if the NIE utilization staff does not focus on creating the organizational and psychological conditions necessary to insure that change will occur.

Without any attempt to be comprehensive or systematic, all of the following areas must be explored to insure the success of the awareness and motivation function: working with parent, community, and professional groups to apply pressure for change; getting administrators and teachers to understand both the need for change and the opportunities provided by NIE products; and working to change the organizational and reward structures that form barriers to the effective use of a new product. NIE must study ways to build its products so that they fulfill their function with as few changes in the structure and process of education as are necessary to achieve their objective. In all of this work it is obvious that manpower, human contact, or "linking agents" will be the key factor in success. As a result, a major focus of the NIE utilization program must be on how to provide these agents with the training, tools, and other requirements necessary to perform effectively.

3. Choosing Distribution Arrangements and Agents.

If motivating users to need NIE products is the most critical problem, finding the proper configuration of agents to distribute NIE products

is the second most critical one. In most situations, with most products, utilization work may be performed by multiple agents. As a result, it is of paramount importance that the NIE utilization staff take a leadership role in managing the product utilization functions. In every case, the staff should attempt first to get someone else to do the work (if they can do it effectively at low cost), but where this cannot be arranged, NIE must do it unilaterally. There are several general ways in which the NIE utilization staff might act as its own marketing agent in order to improve the utilization of NIE products.

(a) The staff could ascertain the relative utility of various techniques for contacting and motivating potential product users.

(b) The staff could establish more effective liaisons with intermediate agents who can perform much of the work of effecting utilization. Contractual or informal working agreements must be established with State Education Departments, multiple county service centers, university extension services, and other agents who can link NIE to the schools. Not only are these agencies in a position to carry NIE's "message" to the school consumers, but in many cases they can absorb part of the costs. For example, by "bicycling" or circulating a few products around an area they can reduce the cost per use. Actual product use(in appropriate situations), not the number of product "sales," is the measure of success. Frequently linking agencies cannot measure or pass on their costs directly to the user. If these arrangements are to work, much attention must be given to the nature of supporting training, servicing, and "starting"

of such agents.

(c) Directed or selective marketing could be undertaken. Too much educational product distribution has been "broadcast" dissemination. If NIE can define target users, directed strategies can be developed for contacting them.

(d) Textbook companies have long known the promotional power of giving away desk copies but multi-media inservice training programs cannot be treated in the same way because (1) they are too expensive, and (2) such products do not have a mass market--a half dozen sales to a single buyer are probably all that can be expected. Sample filmstrips or cartridge film clips and excerpts should and could be put together as promotional ads. Diagnostic tools could be made available for demonstrating the need for a product.

(e) Use could be made of "opinion leaders" to help or influence others in deciding on the use of new products. NIE could maintain basic information about product users (e.g. lists) and investigate ways to bring such leaders into effective contact with other potential users.

4. Providing for Installation, Service, and Monitoring.

Most commercial educational publishing organizations are not equipped to provide all that is required to install, service, and monitor the use of new and complex educational products, but they are probably better prepared than most other agents to contribute to this task. For the near future, commercial publishers are probably the most promising existing resource upon which the new utilization efforts will have to build.

Eventually these commercial agents will become more experienced and better equipped to install and service complex new products. In the early stages, however, the NIE will have to focus attention on defining the nature of installation, service, and monitoring. There is a need for a better understanding of the other type of agents that will be needed to support utilization, the number of them, their location, their training requirements, and their cost of operation. Until these things are known, general long-range planning in this area will be difficult.

A Functional Analysis of the Dissemination-Utilization Process

In order to translate the responsibility of NIE for utilization into specific objectives, it is essential that the functions of the development-dissemination-utilization process be understood. As noted earlier not all of these functions would be the responsibility of NIE itself, but NIE must provide a delivery system that does ensure that each function in the process is performed effectively.

The description of functions provided here is not intended to be complete -- either in the sense of its scope or detail. A much more rigorous analysis would be one of the first tasks of the NIE utilization staff. For the purpose of this planning document, this list can serve to focus attention on a key problem.

1. Market Analysis and Projection.

This function is achieved by describing the nature and size of the target audience, projecting the costs of the product to the user, identifying the existing need for the product, estimating the amount of effort that will be required to motivate the user to obtain and use the product, estimating the user's ability to pay, judging the anticipated competition (as it would be perceived by the user), and setting the desired share of the market. All of these activities are interactive: the cost will influence the need and character of the competition, etc. The end product is a set of projections that specify over time the size of the targeted market under different assumptions about the character of the factors that will influence the success of the product's utilization. As with all of the functions to be identified, this one is continuous. As conditions change and more information becomes

available about the nature of the product and its environment, projections will be revised; and, in some cases, the product will have to be modified or revised. A comprehensive analysis of the market should be available before plans are complete for the dissemination and utilization for each major product. This function will likely need to be performed with close involvement of NIE staff.

2. Selecting the Final Form of the Product.

What should be the final form of the product? What media should be involved? What adjustments in form, size, quantity, etc. must be made to meet competitive marketing situations? What changes must be made to bring the product within the cost range required for full utilization? What effect will changes in the product's form have upon its functions? These are all questions that must be answered in order to identify the final form of the product. If a product is to be utilized to its fullest potential, it is important that trade-offs be studied not only in terms of cost but also of feasibility of use. This function will be largely the responsibility of those engaged directly in development, but would make use of market information generated elsewhere.

3. Developing the Final Form of the Product.

After all developmental work has been concluded, the final form of the product must be prepared. The quality of this work is critical to the successful dissemination and utilization of the product. If a rigorous product-development strategy has been followed, the specifications for all elements of the product will be available. It is not to be expected that a product as it emerges from final testing associated with its development will be in a form which would encourage its wide utilization. It will often be necessary to

"package" the product with close attention being given to characteristics of the users or consumers that may impede its proper application or detract from its desirability.

4. Dissemination

The word dissemination has come to mean so many things that it is important to understand its meaning in this context. For present purposes, dissemination will be taken to mean the process of creating an awareness of the existence of a product and an understanding of its functions and applications.

The process of dissemination will also mean the changing of attitudes, motivations, or other conditions that are required to create a need for the product in the mind of the user or purchaser. Dissemination is much more than "spreading the word". It is everything required to bring the user(s) to commitment to obtain the product. Subfunctions include: creating a market (motivation), creating awareness and knowledge of the product, selling (making a persuasive appeal that this product is the best one to fill the need), creating support and reinforcement for the buyer, and seeing that a contract or agreement to install is made. Additional functions include: selecting the agents to perform these functions and the means or strategies that will be used. A careful analysis of these functions will indicate that each may begin at different times. The planning for the type of agent who will be employed and estimating the cost of implementing various strategies must occur during the preliminary conceptualization and planning of the product. Creating a market may also begin early if extensive motivation must be engineered.

5. Distribution.

Dissemination and distribution are two separate functions. The term distribution will be used to refer to all of the functions associated with transferring, storing, insuring, mailing, handling, billing, packaging, collecting, replacing, etc. Somewhat unfortunately, a distribution agent is frequently thought of as someone who also sells the product. Thus, a text-book publisher might be referred to as a distribution agent. His work is clearly defined in terms of a number of relatively independent tasks - commissioning the writers, editing, typesetting, selling, mailing, billing, etc. A particular publisher may be very proficient in some of these functions and quite inexperienced in others. A realistic understanding of the differences among these functions and the talents that are called for is necessary if an optimal distribution channel is to be selected. Of particular importance to distribution is the form of the product -- whether or not it is multi-media, whether or not it involves extensive collating or preparation of small parts, etc.

6. Installation.

If the development work has been properly conducted, an installation plan will have been prepared. The type of assistance, information, motivation, scheduling, etc. that is necessary to see that a product is carefully installed is frequently overlooked. If the problems of installation have not been solved before the product is released for dissemination, many difficulties may be anticipated. The necessary training must also be developed for the consultants, "linking agents," or whoever must supervise and assist in this work.

7. Service.

Some development strategies call for the invention of transportable products. Others concentrate on the creation of new human capabilities or new organization arrangements. A delivery system for the output of NIE cannot avoid a concern with providing services to schools but should avoid those that perpetuate a dependence for continued service. As a result, careful consideration must be given to: the type of service that will be required once the product is installed; identification of the agent who will perform that service; training for those involved in any servicing the product may require; provision for follow-up and support; and identification of the products or capabilities that will be required to perform the service function.

8. Control and Monitoring.

In a sense these two functions are separate. On the other hand, the type of program the user needs to control his use of the product is also likely to produce the information required by NIE to monitor the success of the product. If NIE is to have satisfied consumers of its products, certain procedures should be built into each product to allow the user to monitor and understand the effect of the product. What form should these procedures take? What products or training are required? What feedback does NIE need in order to decide when the product is no longer performing usefully and should be discontinued or revised? How should this information be collected? By whom? Plans for performing the functions should be made before dissemination begins. Agents must be selected.

There are many different ways of organizing relationships between NIE and other educational agencies, both private and public, to provide for the

performance of these basic functions. The linkages suggested in other parts of the Preliminary Plan for NIE will be key elements in these arrangements. Four specific models are described in the next section.

Relationships Between the NIE Utilization Staff and Agents Outside NIE

There are a number of alternative models that can be used to define the relationship between the NIE's involvement in utilization and that of non-NIE agents who might be utilized in the performance of various utilization functions. Four alternatives will be described and discussed briefly; however, as in most applications, the best system is likely to involve a mixture of the strategies implied by each of the models.

The first model to be discussed was alluded to earlier as the "build a better mousetrap and the world will beat a path to your door" model. This model is essentially implied by the policy the Office of Education has followed until very recently whereby all the output of federally sponsored R & D activity immediately moved into the public domain. It was hoped that the results of such a policy would make this output freely and readily available to school users. The policy was also supported as a response to the possible unfairness and injustice that might emerge from a situation where the fruits of publicly-supported efforts could be exploited for private gain. It was presumed that denying copyright and patent protection to the federally-supported R & D developer would be in the interests of the general public.

This policy was an impediment to rapid and efficient utilization and now has been modified to permit short-term copyright protection as a means of (a) safeguarding a development during its formative stages and (b) providing a

controlled incentive to encourage the private sector to invest resources and to undertake parts of the utilization process.

The advantages of the "better mousetrap" approach lie only in its deceptive simplicity. Its implementation requires no investment or attention beyond that of bringing an excellent product into existence - except on the part of the user. It is likely to work only in those situations where it can be assumed that the user is motivated and able both to search out the existence of the better product and to find a way of securing and using it. This idealized situation does not appear to be the one in which public schools find themselves today.

The disadvantages are so numerous that one might consider the model to be no model at all, but rather a denial of the basic problem. The model provides no systematic means to: (1) alert the user to the existence of a better alternative; (2) reproduce and distribute the product in an efficient manner; (3) assist the user in installing the product in his unique application; or (4) service or monitor the product's performance in use. It is likely, therefore, that such a model would be of no value except in utilization of products that are extremely simple and uncomplicated - certainly no more complicated than a foolproof "mousetrap".

The second model might be identified as a competitive commercial model. This model in pure form would rely upon the self-interest of commercial organizations under conditions of free competition to discover and solve all of the various problems of utilization of the output of NIE. It probably would be necessary, however, to limit and control some aspects of competition in order to create a workable system. This control or management function could

be performed by NIE's utilization staff. Contracts with market analysts, distributors, advertisers, etc. could be negotiated to assure performance of most utilization functions. The strength of this model is that it would allow NIE to take advantage of resources that exist in the commercial sector: the energies required to build and maintain a special organization would be minimal.

This is the model now being developed within NCEC under the new U.S.O.E. copyright guidelines. The model seems to have strength, particularly for that part of R & D output that is most consistent with the ongoing experience of the commercial educational publishers. Output that requires approaches to utilization that depart markedly from what has been customary is less likely to be handled effectively through such a model. Since the vast majority of relevant past experience with educational marketing is possessed by the commercial publisher, products that basically entail printing and mass adoption (i.e., "textbooks") are most likely to be well served. It is possible that with subsidies and other encouragement the private sector could become an effective force for many other types of educational products and processes. This general problem is clearly worthy of early study by NIE in planning utilization strategies.

A major disadvantage of the competetive commercial model lies in the dependence of NIE for success upon the cooperation and effectiveness of institutions which may be difficult to control. There are other disadvantages but one that may need special study is the negative attitude among some school personnel regarding the involvement of profit-seeking organizations in the otherwise non-profit oriented tasks of public education.

A third model would be patterned along the same general lines as Comsat but adapted to the unique characteristics of educational needs; this model would have some advantages over the simple competitive commercial model. It would be possible with an educational Comsat model to build on the financial strength and business experience of the educational industry but in a more regulated and orderly manner than would be possible if freer competition were encouraged. Problems of wasteful duplications, compatibility, and design standards would be more likely to be solved. One has only to reflect upon the negative effects of the lack of industry standards in the field of motion-picture projectors and video-tape recorders to begin to see the advantage to the schools of sensible standards of design. This model would also recognize more adequately the rights of the general public to the knowledge and technology of development work generated by investments on the part of all taxpayers. Some of the very knotty problems relating to copyright materials used in education might be resolved more flexibly within this model.

The outstanding performance of Comsat common stock on the New York Stock Exchange since the initial offering of shares should stimulate investor interest in the financial launching of a joint public-private venture. With the government holding 50% of the shares, public support for such an "educational" venture should be strong. The synergistic merger of public ownership with profit-oriented business acumen would seem to offer a sharp and sustained stimulus for educational self-renewal.

Disadvantages here would include the predictable array of problems associated with the creation of any such new educational identity. The possible problems arising from the public's general concern about federal domination

of education would also need to be weighed, since such fears could very well be intensified at the time a new and powerful force in education was created.

A fourth model would entail the creation of a network of up to 200 educational demonstration or renewal centers, each locally managed but operating under NIE guidelines. Each would function in a major city or metropolitan area and serve the area surrounding it. Each would operate in a permanent multi-purpose facility built with federal construction funds, either as part of the Model Cities/Urban Renewal/HUD programs or as a newly-conceived educational facility program.

Each multi-purpose demonstration center would contain a variety of relatively scarce educational resources - expensive audio-visual equipment like videotape and EVR units; planetariums; scientific equipment; natural history realia; computer terminals; tapes for learning relatively esoteric foreign languages; museum-type exhibits of sculpture and artifacts; toy-lending libraries; etc. In addition, provisions could be made to operate fleets of "Learnmobiles" which would transport these scarce resources to schools and colleges throughout the local service region.

Wet carrels, special classrooms, "hard" and "soft" learning areas, information retrieval centers, conference rooms, and office space for the demonstration staff would occupy the major portion of the demonstration and renewal center. Much of the "demonstration" at the center would be of the push-button, rear-projection, do-it-yourself type. A visitor could sample all of NIE's output by himself before deciding where he wished to probe in depth. Some NIE innovations would be functioning in real situations at the center itself. Others could be seen nearby in school buildings or at other operational educational sites.

Professional staff at each center would perform the roles of informing, demonstrating, re-educating, and nurturing. No shortage of such personnel exists; unemployed engineers, scientists, and teachers can be recruited, as can housewives with college degrees. Manpower training programs would be utilized to prepare paraprofessionals and parents to work at the center and in the field.

A full-scale day care program might be operated at each center - both for children in the immediate area and for children of staff members, of teachers and aides in the schools, and of federal employees in the region. An adult education program would use the building in the evenings.

Teachers and other educators from all public and private institutions in the region would be rotated through the center, serving one-month terms as staff associates. In this way, the teachers would return to their regular assignments with a solid grounding in the use of new NIE products and processes. When center staff members were not occupied with in-house assignments, they could spend all their remaining time out in the schools and colleges, demonstrating transportable NIE products, coordinating field tests, providing consultant services, and encouraging educators to visit and use the center, its products, and its services. Staff would maintain close liaison with cooperating agencies - school districts, colleges, state education departments, intermediate centers, parent and community groups, professional educational organizations, school boards, students, etc.

Evaluation of the demonstration centers would be the responsibility of NIE's utilization staff. NIE would also continue to be responsible for overall planning of utilization objectives - preparing market analyses and projections, overseeing developers as "final" product formats are determined, setting installation and utilization goals, outlining monitoring tasks, etc. But feed-

back from demonstration center directors in the field would contribute "on the-firing-line" expertise for each of these broad national responsibilities.

This bold and expensive program can bring about educational reform. With such support, schools and colleges can renew themselves. With such support, NIE's R & D output would be used, as intended, and would not languish unnoticed by those who most need the products and processes that are now rapidly emerging.

The disadvantage of this model, of course, is its cost, yet its effectiveness in bringing about utilization would very likely outstrip that of the other three models.

Guidelines for Utilization

Each product or process of NIE will be unique in terms of its attractiveness to external agents, its potential for utilization, etc. To select a single model, mixed or "pure", would be unwise. Instead, the following stipulations could be used for involving agents outside NIE.

(1) Where possible, NIE should avoid building an extensive permanent, centralized utilization staff of its own. High overheads, rigidity in thinking, and dangers in giving permanent "tenure" to people where extremely high-quality talent will be required are sound reasons for advocating this limitation. It also seems a desirable stance in view of the uncertainty, to date, of funding for utilization efforts.

(2) Where possible, NIE should employ the services of outside agencies when (a) in-house staff training would be expensive and high-quality external services are available and (b) when the creation of a staff function would duplicate services generally available from the private enterprise sphere at a reasonable cost. This principle is in keeping with the general intent of

federal policy to involve the private sector in solving a public problem.

(3) Outside agents should not be used when they will push the costs of NIE products above a price that users can pay, or when the unique nature of a specific product may require a non-commercial image. In any of these cases, NIE would be justified in undertaking the effort required to distribute a product through the public sector.

In practice, these guidelines mean that commercial distributors should be involved with major products that are likely to have a high utility ratio. For "thin market materials" it is reasonably evident that NIE may have to take the major initiative and action in all distribution and utilization tasks.

In applying these guidelines, two special matters deserve attention. First, the complexity of creating markets for NIE products must not be overlooked. Second, special attention must be given to the servicing and monitoring functions.

The tasks of creating a need for NIE products is different from the work of "selling" a particular product to an existing market. Schools are already accustomed to textbooks; adoption of a new one requires only that the decision-maker be convinced by a salesman that his new textbook is significantly better than the competition and that it is within the price range of the school. The types of products likely to be developed under NIE auspices are unknown to schools. Before one of these products can be installed and used, the school must be made aware not only of the product, but <u>aware of a need for the product</u>. In this situation, one should not expect that a commercial textbook publishing company is likely to be able to deliver the needed motivation. Either NIE will have to devote considerable effort and resources to functioning in this motivational capacity itself or it will have to make a comparable effort to identify

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and train others to perform in this motivational role, as in the fourth model suggested above.

A full understanding of the service and monitoring functions is also required in selecting outside agents in the area of utilization. The experience of NSF-funded science programs is a case to consider. Commercial publishers/distributors have failed to provide these services to date. They tend to be inexperienced at judging the nature of the services required and uncertain about the users' willingness to pay for such services. A textbook requires no servicing or monitoring. But a multi-media inservice training program must be serviced if it is to be fully utilized. NIE must undertake a significant effort to insure that someone (either NIE or an agent under a carefully-written contract) is providing these service and monitoring functions.

The utilization task is monumental. The needs of the schools and teacher-training institutions are pressing. And partial or tentative patchwork solutions are not meeting today's educational problems.

As Francis S. Chase has stated, "new research and developemnt organizations promise to supply essential ingredients for continuous improvement of education" and "can help to build mechanisms for need identification, problem solving, and institutional regeneration into every part of our educational enterprise."

But this bright educational promise will never be fulfilled unless NIE recognizes the magnitude of the utilization functions and receives adequate funding for the complex work that lies on the immediate horizon.